

**Amendments to the Specification:**

On the page 1, immediately following the title of the invention, please insert the following sentence:

The U.S. Government has a paid-up license in this invention and the right in limited circumstances to require the patent owner to license others on reasonable terms as provided for by the terms of contract MDA972-99-C-0009 awarded by DARPA.

Please amend the paragraph beginning on page 43, line 3 as follows:

Extensive studies were carried out to explore the dependence of TMR on the thickness of the MgO tunnel barrier 120'. High TMR well above 100% was found for a wide range of MgO barrier thicknesses corresponding to RA values ranging from below  $\sim 80 \Omega(\mu\text{m})^2$  to more than  $10^9 \Omega(\mu\text{m})^2$ . Studies were carried out to determine the lowest possible RA values. The smallest RA values were obtained by depositing the thinnest possible Mg layers 122 and the thinnest possible MgO layers 124. RA values as low as  $\sim 1 \Omega(\mu\text{m})^2$  were obtained for Mg layers in the range of 4 to 5 Å and for MgO layers 124 in the range of 1-4 Å. However, for these ultra-low RA values reduced TMR was observed with TMR values in the range of 25 to 30%. As described in US Patent 6,349,289 6,359,289 to Parkin, magnetic tunnel junction based recording read heads for future generation ultra high density magnetic recording disk drives require extremely low RA tunnel barriers with reasonable TMR values. The method of preparing MgO tunnel barriers 120' described in this patent may be extremely useful for such applications.